

IN THE CLAIMS:

Kindly amend the claims as follows:

1. (Currently Amended) In a mobile concrete production apparatus including a frame supporting a mixing auger in which cement, water and aggregate are mixed to create a concrete mixture, said aggregate being transported to said mixing auger by a conveyor, the improvement comprising:

a turbine mixer supported on said frame of said mobile concrete production apparatus and being operable to receive a supply of dry cement and a supply of water to pre-mix said cement and said water into a cement paste before being introduced into said mixing auger to be combined with said aggregate, said turbine mixer including:

a mixing chamber operably supported on said mobile concrete production apparatus to receive said supply of dry cement, said mixing chamber having a front cover plate, a back plate and a generally cylindrical shell positioned between said front cover plate and said back plate, said supply of dry cement being introduced into said mixing chamber through a central opening in said back plate;

an inlet port cooperable with said mixing chamber to introduce said supply of water into said mixing chamber through said central opening in said back plate;

a mixing plate being supported for rotational movement within said mixing chamber and having a plurality of agitating fins mounted thereon to effect a mixing of said cement and said water upon rotation thereof to create said cement paste for conveying through a discharge port positioned on said front cover plate of said mixing chamber directly into said mixing auger to be mixed with said aggregate ~~therein~~ transported to said mixing auger by said conveyor by said mixing auger.

2. (Original Claim) The concrete production apparatus of Claim 1 further comprising:
a metering mechanism to meter the flow of cement into said turbine mixer.

3. (Previously Presented) The concrete production apparatus of Claim 2 wherein said turbine mixer further includes:

a housing in which is mounted a cement conveying apparatus operable to receive said supply of dry cement for introduction into said mixing chamber.

Claim 4 (Canceled).

5. (Previously Presented) The concrete production apparatus of Claim 3 wherein said cylindrical shell of said mixing chamber has a first diameter, said mixing plate having a second diameter smaller than said first diameter to form an annular gap between said mixing plate and said cylindrical shell, said mixing plate dividing said cylindrical shell into an inner chamber and an outer chamber, said cement and said water being received in said inner chamber and said cement paste being discharged from said outer chamber.

6. (Currently Amended) The concrete production apparatus of Claim 5 wherein said agitating fins are mounted on a circumferential periphery of said mixing plate for movement along said annular gap, said agitating fins being disposed outwardly from said mixing plate into said annular gap.

7. (Currently Amended) The concrete production apparatus of Claim 6 wherein said cement conveying apparatus is an auger rotatably supported in said housing to direct dry cement into said mixing chamber, said mixing plate being mounted to said auger for rotation therewith by being operatively connected to a drive mechanism for rotation thereof at a rotational speed at identical rotational speeds greater than 500 revolutions per minute.

8. (Previously Presented) The concrete production apparatus of Claim 1 wherein said discharge port is positionally mounted on said front cover plate to define a positionally adjustable discharge opening.

9. (Previously Presented) The concrete production apparatus of Claim 5 wherein said mixing plate is also formed with blades positioned in said inner chamber to direct material outwardly toward said annular gap for passage into said outer chamber.

10. (Currently Amended) A turbine mixer for a concrete production system ~~having~~ combining a supply of dry cement, a supply of water, and a supply of aggregate ~~and by a mixing apparatus for combining cement, water and aggregate~~ to form concrete comprising:

a housing having an inlet opening therein for communication with said supply of dry cement to receive said dry cement therefrom;

an inlet port supported on said housing and connected with said supply of water;

a mixing chamber having a front cover plate, a back plate and a generally cylindrical shell positioned between said front cover plate and said back plate, said mixing chamber receiving said dry cement and said water through a central opening in said back plate;

a mixing plate operably supported in said mixing chamber to mix said dry cement and said water into a cement slurry to be discharged from said mixing chamber for subsequent mixing with aggregate remotely in said mixing apparatus to form a concrete mix, said mixing plate dividing said mixing chamber into a first chamber in which said dry cement and said water are mixed into said cement slurry and a second chamber in which said cement slurry is further mixed and discharged from said mixing chamber, said mixing plate defining an annular gap between said mixing plate and said mixing chamber for the passage of said cement slurry from said first chamber to said second chamber; and

a plurality of agitating fins mounted on said mixing plate to be cooperable with pegs positioned in said first chamber to break said dry cement and water into fine particles for mixture into said cement slurry to be discharged through said annular gap into said second chamber, said agitating fins being disposed outwardly from said mixing plate and projecting into said annular gap.

Claim 11 (Canceled).

12. (Previously Presented) The turbine mixer of Claim 10 wherein said mixing said cylindrical shell has a first diameter, said mixing plate having a second diameter smaller than said first diameter to form said annular gap between said mixing plate and said cylindrical shell, said agitating fins being mounted on a circumferential periphery of said mixing plate for movement along said annular gap.

13. (Original Claim) The turbine mixer of Claim 12 wherein said mixing plate is also formed with blades positioned in said inner chamber to direct material outwardly toward said annular gap for passage therethrough into said outer chamber.

14. (Previously Presented) The turbine mixer of Claim 13 further comprising an auger rotatably supported in said housing to direct said cement through said central opening into said inner chamber of said mixing chamber, said mixing plate being attached to a shaft on which said auger is mounted, said shaft being rotated by a drive mechanism for rotation of said auger and mixing plate at a rotational speed greater than 500 revolutions per minute

Claim 15 (Canceled).

16. (Previously Presented) The turbine mixer of Claim 10 wherein said front cover plate includes a discharge port and an adjustable slide plate having a discharge opening therein registrable with said discharge port, said adjustable slide plate being movable on said front cover plate to vary the position of the discharge opening from said mixing chamber for varying the mixing operation of the mixing plate.

Claims 17 – 32 (Canceled).

33. (Currently Amended) A turbine mixer for pre-mixing cement and water to create cement slurry to be combined subsequently with aggregates for the production of a concrete mixture comprising:

a mixing chamber having an inner chamber receiving said cement along a first flow path and said water along a second flow path to be combined at an axial inlet opening into said inner chamber and an outer chamber for further mixing said cement slurry and discharge thereof from said mixing chamber; and

a mixing plate having a plurality of first agitating fins mounted thereon to effect an atomization of said cement and said water within said inner chamber to create said cement slurry, said mixing plate dividing said mixing chamber into said inner and outer chambers with said inner chamber being on a material inlet side of said mixing plate and said outer chamber being on an opposing side of said of said mixing plate, said mixing plate being rotatably

supported within said mixing chamber for operation at high speeds such that said first agitating fins rotate in close proximity past stationary pegs mounted in said inner chamber to break-up cement and water into fine particles to be combined to form said cement slurry, said mixing plate being operable to convey said cement slurry to said outer chamber for further mixing by second agitating fins mounted on said mixing plate within said outer chamber before being discharged from said mixing chamber to be combined remotely with said aggregates.

34. (Previously Presented) The turbine mixer of Claim 33 wherein said mixing apparatus includes:

a metering mechanism to control the rate of inflow of cement into the mixing chamber.

35. (Currently Amended) The turbine mixer of Claim 33 wherein first and second agitating fins are mounted on a circumferential periphery of said mixing plate, both said first and second agitating fins being disposed outwardly of a peripheral edge of said mixing plate.

36. (Original Claim) The turbine mixer of Claim 35 wherein said mixing chamber is formed as a cylindrical structure having a first diameter, said mixing plate having a second diameter smaller than said first diameter to form an annular gap between said mixing plate and said cylindrical structure, said cement slurry passing through said annular gap to move from said inner chamber to said outer chamber to be discharged from said mixing chamber.

37. (Previously Presented) The turbine mixer of Claim 36 further comprising:

a housing having a material supply opening therein for communication with said metering mechanism for the metered supply of cement into said mixing chamber;
an inlet port supported on said housing and connected with a supply of water;
said mixing chamber receiving dry cement and said water through said inlet opening to begin hydrating said dry cement as said dry cement and said water is being introduced into said mixing chamber.

38. (Original Claim) The turbine mixer of Claim 36 wherein said mixing plate is also formed with blades positioned in said inner chamber to direct material outwardly toward said annular gap for passage therethrough into said outer chamber.

39. (Original Claim) The turbine mixer of Claim 35 wherein said mixing chamber includes a discharge port and an adjustable slide plate having a discharge opening therein registrable with said discharge port, said adjustable slide plate being movable on said outer chamber to vary the position of the discharge opening relative to said agitating fins on said mixing plate for varying the mixing operation of the mixing apparatus.

40. (Currently Amended) In a mobile concrete production apparatus including a frame; an aggregate hopper supported on said frame for carrying a supply of aggregate; a cement hopper supported on said frame for carrying a supply of dry cement; a water tank supported on said frame for holding a supply of water; a mixing auger for mixing components to produce concrete; an aggregates conveyor operably associated with the aggregate hopper to convey aggregate to said mixing auger; and a metering mechanism for conveying said dry cement from said cement hopper in measured quantities, the improvement comprising:

a turbine mixer supported by said frame and being operable, while said mobile concrete production apparatus is producing concrete within said mixing auger, to receive a continuous supply of dry cement from said metering mechanism and a continuous supply of water from said water tank to pre-mix said cement and said water into a cement slurry before being introduced into said mixing auger to be combined with said aggregate, said turbine mixer defining a mixing chamber within which a mixing plate is mounted to divide said mixing chamber into a first chamber that receives said dry cement and water and a second chamber from which said cement slurry is discharged, said mixing plate being rotatable at high speeds to mix said water and said dry cement into said cement slurry, said mixing plate having a plurality of first agitating fins mounted thereon within said first chamber and a plurality of second agitating fins mounted thereon within said second chamber to affect a mixing of said cement and said water upon rotation of said mixing plate to create said cement slurry for discharge from said second chamber.

41. (Previously Presented) The mobile concrete production apparatus of Claim 40 wherein said mixing chamber is in flow communication with a housing positioned to receive said dry cement from said metering mechanism, said housing including an auger for conveying said dry cement into said mixing chamber, said mixing plate having a smaller diameter than said mixing chamber to define an annular gap therebetween, said cement slurry created in said first chamber being able to pass from said first chamber into said second chamber by flowing through said annular gap.

42. (Currently Amended) The mobile concrete production apparatus of Claim 42 wherein said first and second agitating fins are integrally formed and mounted on a circumferential periphery of said mixing plate to effect a mixing of said cement and said water to create said cement slurry and a movement of said cement slurry through said annular gap, said first and second agitating fins being disposed outwardly from said mixing plate to extend into said annular gap.

43. (Previously Presented) The mobile concrete production apparatus of Claim 42 wherein said second chamber includes a positionally adjustable discharge opening.

44. (Previously Presented) The mobile concrete production apparatus of Claim 42 wherein said mixing plate is also formed with blades positioned in said first chamber to direct material outwardly toward said annular gap for passage into said second chamber.

45. (Previously Presented) The mobile concrete production apparatus of Claim 42 wherein said first chamber is formed with pegs positionally fixed within said first chamber to cooperate with said agitating fins to break said dry cement and water into fine particles for the production of said cement slurry.

46. (Currently Amended) A turbine mixer for pre-mixing cement and water to create a cement slurry to be combined in a concrete production apparatus with aggregates for the production of a concrete mixture comprising:

a mixing chamber having a front cover plate, a back plate, a generally cylindrical shell positioned between said front cover plate and said back plate and a rotatable mixing plate

dividing said mixing chamber into an inner chamber receiving a continuous metered supply of said cement and a continuous metered supply of said water through a central opening in said back plate for engagement with a plurality of agitating fins mounted on said mixing plate within said inner chamber to create said cement slurry and into an outer chamber for further mixing said cement slurry and discharge thereof from said mixing chamber, said turbine mixer being operable to receive continuous supplies of said cement and water and continuously discharging said cement slurry into a mixing auger to be combined with aggregate to continuously produce concrete; and

a housing in flow communication with said inner chamber and being positioned to receive said cement from a metering mechanism, said housing including an auger for conveying said cement into said inner chamber, said auger and said mixing plate being connected to a drive shaft for rotation therewith at identical rotational speeds.

47. (Currently Amended) The turbine mixer of Claim 46 wherein said mixing plate is rotatable at high speeds ~~and such that said agitating fins are~~ cooperable with pegs fixed within said inner chamber to break-up said cement and water into fine particles to be combined within said inner chamber to form said cement slurry.

48. (Previously Presented) The turbine mixer of Claim 47 wherein said mixing plate has a smaller diameter than said mixing chamber to define an annular gap therebetween, said cement slurry created in said inner chamber being able to pass from said inner chamber into said outer chamber by flowing through said annular gap.

49. (Currently Amended) The turbine mixer of Claim 48 wherein said ~~mixing apparatus includes a housing in flow communication with said inner chamber and being positioned to receive said cement from a metering mechanism, said housing including an auger for conveying said cement into said inner chamber~~ agitating fins extend from said inner chamber into said outer chamber, said outer chamber having fixed radially extending blades located to be in close proximity to said agitating fins when rotated with said mixing plate.

50. (Currently Amended) The turbine mixer of ~~Claim 49~~ Claim 48 wherein said agitating fins are mounted on a circumferential periphery of said mixing plate to effect a mixing of said cement

and said water to create said cement slurry and to effect a movement of said cement slurry through said annular gap, said agitating fins being disposed outwardly from said mixing plate into said annular gap.

51. (Previously Presented) The turbine mixer of Claim 50 wherein said mixing plate is also formed with radially extending blades positioned in said inner chamber to direct material outwardly toward said annular gap for passage into said outer chamber.

52. (Currently Amended) The turbine mixer of Claim 51 wherein said auger in said housing is formed by ~~includes a central shaft with~~ a spiral flighting affixed ~~thereto~~ to said drive shaft, said mixing plate being attached to an end of said drive shaft which is rotated by a drive mechanism for rotation of said auger and said mixing plate at a rotational speed greater than 500 revolutions per minute.

53. (Previously Presented) The turbine mixer of Claim 52 wherein said outer chamber includes a discharge port and an adjustable slide plate having a discharge opening therein registerable with said discharge port, said adjustable slide plate being movable on said second chamber to vary the position of the discharge opening relative to said agitating fins on said mixing plate for varying the mixing operation of the mixing apparatus.